

Serial No. 09/745,345
Amdt. dated **NOVEMBER 15, 2004**
Reply to Office Action of August 18, 2004

Docket No. P-0172

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An ATM (Asynchronous Transfer Mode) cell transmitting device of an ATM switching system comprising:
 - a time slot input unit for switching a plurality of time slots;
 - a packet processing unit for forming a CPS (Common Part Sublayer) packet by using data corresponding to the switched time slots;
 - a CAM (Contents Addressable Memory) for receiving header information of the CPS packet and outputting an ATM buffer number;
 - an ATM cell transmitting unit for storing the data of the CPS packet outputted from the packet processing unit according to the ATM buffer number outputted from the CAM, to form an ATM cell; and
 - a controlling unit for performing a general controlling operation, wherein the CAM allocates a same ATM buffer number to include different time slots and CIDs (Channel Identifiers) for identity a plurality of users in a single VC (Virtual Channel) in the same ATM buffer number.

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2. (Original) The device according to claim 1, further comprising a timer for setting an ATM cell transmitting time of the ATM cell transmitting unit.

3. (Original) The device according to claim 2, wherein the ATM cell transmitting unit receives a CPS packet data and an ATM header for a predetermined time as set in the timer and outputs an ATM cell.

4. (Original) The device according to claim 3, wherein the ATM cell transmitting unit sets CPS packet data which is not received yet as '0' and completes an ATM cell, in case that CPS packet data is not wholly received for a predetermined time as set in the timer.

5. (Original) The device according to claim 1, wherein the header information of the CPS packet refers to a time slot number and a channel identifier (CID).

6. (Previously Presented) The device according to claim 1, wherein the time slot input unit comprises:

a time switch for switching the plurality of time slots;

an input buffer unit for storing the data corresponding to the plurality of time

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slots outputted from the time switch; and

a multiplexer for selectively outputting the data stored in the input buffer unit.

7. (Currently Amended) The device according to claim 1, wherein the packet processing unit comprises:

a packet header storing unit for receiving a CPS packet header by time slot from the controlling unit and storing the same; and

a CPS packet buffer for storing the CPS packet header outputted from the packet header storing unit and the time slot data outputted from the multiplexer, to form a CPS packet.

8. (Canceled).

9. (Previously Presented) The device according to claim 1, wherein the ATM cell transmitting unit comprises:

an ATM buffer unit for storing the CPS packet data outputted from the packet processing unit in a plurality of ATM buffers according to the ATM buffer number of the CAM;

an ATM header generating unit for storing an ATM header; and

a transmitting buffer for combining the outputs of the ATM buffer unit and of the ATM header generating unit, to form an ATM cell.

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10. (Currently Amended) An ATM (Asynchronous Transfer Mode) cell transmitting device comprising:
- a time slot input unit for switching a plurality of time slots;
 - a packet processing unit for receiving data corresponding to the switched time slots and forming a CPS (Common Part Sublayer) packet;
 - a CAM (Contents Addressable Memory) for outputting ATM buffer numbers for the time slots and a CID (Channel Identifier) inputted from the packet processing unit;
 - an ATM transmitting unit for storing the data of the CPS packet outputted from the packet processing unit according to the ATM buffer number outputted from the CAM, to form an ATM cell;
 - a timer for setting an ATM cell transmitting unit; and
 - a controlling unit for performing a general controlling operation,
wherein the CAM includes a look-up table having different time slot numbers and CIDs (Channel Identifiers) for identifying a plurality of users in a single VC (Virtual Channel) allocated to a same ATM buffer number such that a plurality of time slots are multiplexed in the same ATM buffer number.

11. (Previously Presented) The device according to claim 10, wherein the time slot input unit comprises:

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a time switch for switching the plurality of time slots;
an input buffer unit having a plurality of small capacity of buffers, for storing the data corresponding to the plurality of time slots outputted from the time switch; and
a multiplexer for selectively outputting data stored in the input buffer unit.

12. (Previously Presented) The device according to claim 10, wherein the packet processing unit comprises:

a packet header storing unit for storing a CPS packet header provided from the controlling unit; and
a CPS packet buffer for storing the CPS packet header outputted from the packet header storing unit and the time slot data outputted from the multiplexer to form a CPS packet.

13. (Canceled).

14. (Original) The device according to claim 10, wherein the ATM cell transmitting unit sets CPS packet data which is not received yet as '0' and completes an ATM cell, in case that CPS packet data is not wholly received for a predetermined time as set in the timer.

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15. (Previously Presented) The device according to claim 10, wherein the ATM cell transmitting unit comprises:

an ATM buffer unit for storing the CPS packet data outputted from the packet processing unit in a plurality of ATM buffers indicated by the ATM buffer number of the CAM;

an ATM header generating unit for storing the ATM header provided from the controlling unit; and

a transmitting buffer for combining the outputs of the ATM buffer unit and of the ATM header generating unit, to form an ATM cell.

16. (Currently Amended) An ATM cell transmitting device of a switching system comprising:

an ATM cell receiving unit for extracting a CPS (Common Part Sublayer) packet from a received ATM cell and storing it according to an ATM buffer number;

a packet processing unit for converting header information of the extracted CPS packet and the ATM buffer number outputted from the ATM cell receiving unit into a time slot number and storing a payload of the CPS packet according to the time slot number; and

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a time slot output unit for demultiplexing the payload of the CPS packet outputted from the packet processing unit to a plurality of time slots and outputting the same,

wherein a single ATM buffer number includes multiple time slot numbers and CIDs (Channel Identifiers) for identifying a plurality of users in a single VC (Virtual Channel).

17. (Previously Presented) The device according to claim 16, wherein the header information of the CPS packet includes the CID.

18. (Original) The device according to claim 16, wherein the ATM buffer number is determined by the VPI/VCI included in the header of the ATM cell.

19. (Previously Presented) The device according to claim 16, wherein the ATM cell receiving unit comprises:

a receiving buffer for storing the ATM cell received through the ATM network;

a cell segmenting unit for reading the ATM cell from the receiving buffer, extracting a CPS packet and outputting VPI/VCI information of the ATM cell header;

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a first CAM for outputting an ATM buffer number corresponding to the output VPI/VCI of the cell segmenting unit; and

an ATM buffer unit for storing the CPS packet outputted from the cell segmenting unit according to the ATM buffer number outputted from the first CAM.

20. (Previously Presented) The device according to claim 19, wherein the ATM buffer unit has a small capacity of N number of ATM buffers, for outputting an ATM buffer number and the CID of the CPS packet header to the packet processing unit as the CPS packet is wholly completed.

21. (Previously Presented) The device according to claim 19, wherein the packet processing unit comprises:

a second CAM for outputting a time slot number corresponding to the ATM buffer number inputted from the ATM receiving unit; and

a CPS packet buffer unit for storing the CPS packet payload outputted from the ATM receiving unit according to the time slot number outputted from the second CAM.

22. (Previously Presented) The device according to claim 16, wherein the time slot output unit comprises:

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a demultiplexer for receiving the CPS packet payload from the CPS packet buffer unit and demultiplexing it to a plurality of time slots;

an output buffer unit having N number of small capacity of buffers, for storing data corresponding to the time slots demultiplexed by the demultiplexer; and

a time switch for switching the plurality of time slots stored in the output buffer unit.